SVKM's
D. J. Sanghvi College of Engineering

Program: B.Tech in Electronics & Telecommunication Engg **Academic Year: 2022** **Duration: 3 hours**
Date: 14.01.2023
Time: 10:30 am to 01:30 pm
Subject: Operating Systems (Semester V) **Marks: 75**

Instructions: Candidates should read carefully the instructions printed on the question paper and on the cover page of the Answer Book, which is provided for their use.
(1) This question paper contains two pages.
(2) All Questions are Compulsory.
(3) All questions carry equal marks.
(4) Answer to each new question is to be started on a fresh page.
(5) Figures in the brackets on the right indicate full marks.
(6) Assume suitable data wherever required, but justify it.
(7) Draw the neat-labelled diagrams, wherever necessary.

Question No.		Max. Marks
Q1 (a)	Explain scheduling in Real time systems and differentiate between Real-time Tasks and Non-Real-time Tasks	[07]
Q1 (b)	State role of layers in operating system and Explain layered operating system. OR Draw and explain architecture of Microkernel, List the difference between Monolithic & Micro kernel.	[08]
Q2 (a)	What is scheduling, Explain Preemptive & Non-Preemptive scheduling algorithm?	[07]
Q2 (b)	What is Threading? Explain multithreading models in operating systems. OR Consider the requests received from processes in given order 300K, 25K, 125K, and 50K. There are two blocks of memory available of size 150K followed by a block size 350K. Elaborate Best fit and First Fit partition allocation method in details & Find which one is most suitable for above condition.	[08]
Q3 (a)	What is file allocation, Explain Linked list & Indexed Allocation technique?	[07]

Q3 (b)	What is Interrupt in OS? Briefly explain different types of interrupt in OS. OR If order of request is (82, 170, 43, 140, 24, 16,190) & current position of Read/Write head is at 50. Calculate total seek time using FCFS, SSTF, SCAN, C-SCAN disk scheduling algorithm. Max Track number = 190	[08]
Q4 (a)	Explain UNIX file system basics and file management concept.	[07]
Q4 (b)	Write a short note on UNIX Memory Management OR Explain the banker's algorithm with a suitable example.	[08]
Q5 (a)	Explain LINUX task structure and Process / Thread States in LINUX	[07]
Q5 (b)	Differentiate between Linux and UNIX operating systems. OR What is Buddy System & Explain Buddy algorithm in details?	[08]